

ground vertices + edges (road network)
 launch locations, land locations
 lower + upper altitudes for air lanes
 minimum length of roundabout lane

UAM-~~create~~ airways - demo

↓ UAM-~~create~~ airways

airway

- vertices ground
- edges ground
- v-len roundabout min length
- ground-launch-vertices
- ground-land-vertices
- launch-lane-indices
- land-lane-indices
- vertexes 3D x, y, z, v_1, v_2
- lanes $x_1, y_1, z_1, x_2, y_2, z_2, g_{v_1}, g_{v_2}, v_{3D1}, v_{3D2}$
- lane-lengths

← motivatory ground vertex
 ← motivatory other ground vertex

issues: + angle of merging lanes

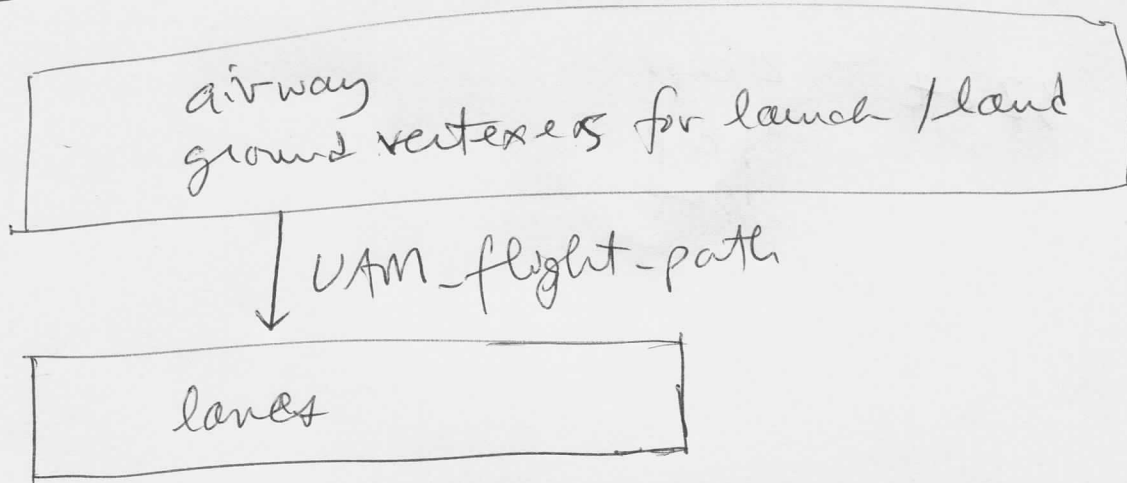
~~* single~~
 * GIS → airways



↳ UAS may get too close: not accounted for

Airway creation (lanes)

Flight Path Creation



* issues: * paths other than shortest
e.g., put in weights for weather
congestion, closed lanes, etc.

Flight Reservations

flights

$$(k). \text{flights} = \begin{bmatrix} t_{11} & t_{12} & s_{1k} \\ t_{21} & t_{22} & s_{2k} \\ \vdots & \vdots & \vdots \end{bmatrix}$$

airways

earliest launch time

latest launch time

speed requested (through all lanes)

$h-t$ headway time

flight id

↓
utm-reserve-flight

$$\text{flight-plan} = \begin{bmatrix} t_{11} & t_{12} & s_1 & l_1 \\ t_{21} & t_{22} & s_2 & l_2 \\ \vdots & \vdots & \vdots & \vdots \\ t_{n1} & t_{n2} & s_n & l_n \end{bmatrix} \left. \begin{array}{l} \text{id} \\ " \\ " \end{array} \right\}$$

d -count # flights in lanes
in path

flights : updated flights

issues: * doesn't account for merging or diverging lanes
being too close

utm-
* LSD needs to not check same flight
beyond lane 1